

CLAIMS

1. A device (15; 15'; 15'') for slowing the movement of a door (2), drawer or similar member movable with respect to a fixed structure (S) and urged by unidirectional thrust means (4), including:

- a casing (17; 17'; 17'') adapted to be fixed to the said movable member (2) or to the said structure (S) and defining a substantially cylindrical chamber (18; 18'; 18'') containing a viscous braking fluid, and
- a rotor (31; 31'; 31'') housed within the said chamber (18; 18'; 18''), the said rotor (31; 31'; 31'') including a disc portion (32; 32'; 32'') adapted to rotate inside the said casing (17; 17'; 17'') and a shaft portion (33; 33'; 33'') extending axially from the centre of the disc portion (32; 32'; 32'') and protruding through one of the end walls (21; 21'; 21'') of the casing (17; 17'; 17'') in such a way as to be able to be operatively associated with the other of the said movable member (2) or the structure (S), at least one surface (23a; 17b'; 17b'') of the said casing (17; 17'; 17'') defining with a corresponding surface (62; 35a'; 35a'') of the said rotor (31; 31'; 31'') at least one pair of opposing surfaces extending substantially perpendicular to the axis of rotation of the said rotor,

characterised in that

- a first surface (23a; 17b'; 35a'') of at least one pair of the said opposing surfaces (23a, 62; 17b', 35a'; 35a'', 17b'') has a recess (51; 51'; 51'') for housing a pivotable arm element (52; 52'; 52''), the said arm element (52; 52'; 52'') having a pin portion (54; 54'; 54'') at one end projecting with respect to the said first surface (23a; 17b'; 35a'') inwardly of the said cylindrical chamber (18; 18'; 18''), and

- the second surface (62; 35a'; 17b'') of the said pair of opposing surfaces (23a, 62; 17b', 35a'; 35a'', 17b'') has an elongate groove (70; 70'; 70'') extending concentrically with the shaft portion (33; 33'; 33'') of the said rotor (31; 31'; 31'') and engageable by the said pin portion (54; 54'; 54'') of the arm element (52; 52'; 52''), the said groove (70; 70'; 70'') having a cam portion (76, 76'; 76'') at one end (73, 73'; 73'') dividing the said groove (70, 70'; 70'') into a return path (75; 75'; 75'') and a forward path (74; 74'; 74'') for the said pin portion (54; 54'; 54'') in such a way as to define, in cooperation with the said thrust means (4), a releasable locking position for the said rotor (31; 31'; 31'') relative to the casing (17; 17'; 17'').

2. A device according to Claim 1 in which the said arm element (52; 52'; 52'') is mounted pivotably on a pin (53; 53'; 53'') of the arm element integrally formed with the casing (17; 17') or with the rotor (31'').

3. A device according to Claim 2, in which the said arm element (52; 52'; 52'') is mounted so as to be pivotable inside the recess (51; 51'; 51'').

4. A device according to Claim 3, in which the said arm element (52; 52'; 52'') is formed in one piece.

5. A device according to any of the preceding Claims, in which the said at least one pair of opposing surfaces (23a, 62; 17b', 35a'; 35a'', 17b'') is formed by the upper and lower surfaces (62) of the said disc portion (32) of the rotor (31) with respective end surfaces (23a) of the said cylindrical chamber (18).

6. A device according to Claim 5, in which the said first surface (23a) is the base surface of the chamber (18) and the said second surface (62) is the lower surface of the disc portion (32) of the rotor (31).

7. A device according to any Claim from 1 to 4, in which the said casing (17; 17'; 17'') and the said rotor (31; 31'; 31'') include respective portions (17a', 35'; 17a'', 35'') extending radially relative to the axis of rotation of the rotor (31; 31'; 31''), the said at least one pair of opposing surfaces (23a, 62; 17b', 35a'; 35a'', 17b'') being formed by a surface (17b'; 17b'') of the portion (17a'; 17a'') extending radially from the casing (17; 17'; 17'') and by a corresponding surface (35a'; 35a'') of the portion (35'; 35'') extending radially from the rotor (31; 31'; 31'') when the said surfaces (17b', 35a'; 35a'', 17b'') of the radially extending portions (17a', 35'; 17a'', 35'') are facing each other during rotation of the rotor (31; 31'; 31'') relative to the casing (17; 17'; 17'').

8. A device according to Claim 7, in which the said first surface (17b') is the upper surface of the portion (17a') extending radially from the casing (17; 17'; 17''), and the said second surface (35a') is the lower surface of the portion (35') extending radially from the rotor (31; 31'; 31'').

9. A device according to any of the preceding Claims, in which the said disc portion (32; 32'; 32'') of the rotor (31; 31'; 31'') has a plurality of vane portions (61; 61') extending radially therefrom.

10. A device according to Claim 7, in which the said first surface (35a'') is the upper surface of the portion (35'') extending radially from the rotor (31; 31'; 31'') and the said second surface (17b'') is the lower surface of the portion (17a'') extending radially from the casing (17; 17'; 17'').

11. A device according to Claim 10, in which the said rotor (31; 31'; 31'') has a through hole (31a'') extending coaxially with the said rotor, the said through hole being fixable to a rod element defining a pivot axis for the said movable member (2) relative to the fixed structure (S).

12. A device according to Claims 10 or 11, in which the said disc portion (32; 32'; 32'') of the rotor (31; 31'; 31'') has a plurality of vane portions (61'') extending axially therefrom.

13. A device according to any of Claims 7 to 12, also including means (37', 37a') for keeping the surfaces (17b', 35a'; 35a'', 17b'') of the radially extending portions (17a', 35'; 17a'', 35'') close together when the said surfaces (17b', 35a'; 35a'', 17b'') of the radially extending portions (17a', 35'; 17a'', 35'') are facing each other during rotation of the rotor (31; 31'; 31'') relative to the casing (17; 17'; 17'')